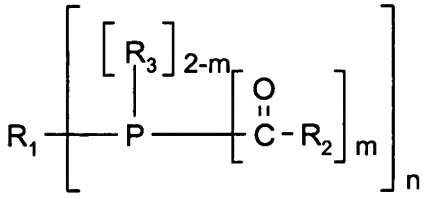
In the claims:

1. **(previously presented)** A process for the preparation of acylphosphanes of formula I



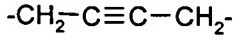
(I), wherein

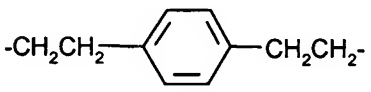
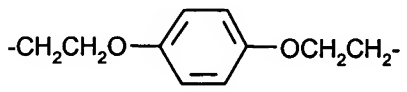
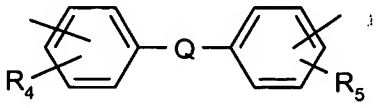
n and m are each independently of the other 1 or 2;

R_1, if n = 1, is

C_1-C_{18}alkyl, C_2-C_{18}alkyl which is interrupted by one or several non-successive O atoms, phenyl-C_1-C_4alkyl, C_2-C_8alkenyl, phenyl, naphthyl, biphenyl, C_5-C_{12}cycloalkyl or a 5- or 6-membered O-, S- or N-containing heterocyclic ring, the radicals phenyl, naphthyl, biphenyl, C_5-C_{12}cycloalkyl or the 5- or 6-membered O-, S- or N-containing heterocyclic ring being unsubstituted or substituted by one to five halogen, C_1-C_8alkyl, C_1-C_8alkylthio, C_1-C_8alkoxy and/or $-N(R_8)_2$;

R_1, if n = 2, is

C_1-C_{18}alkylene, C_2-C_{18}alkylene which is interrupted by one or several non-successive O atoms; or R_1 is C_1-C_6alkylene which is substituted by C_1-C_4alkoxy, phenyl, C_1-C_4alkylphenyl, phenyl-C_1-C_4alkyl or C_1-C_6alkoxyphenyl; or R_1 is phenylene or xylylene, which radicals are unsubstituted or substituted by one to three C_1-C_4alkyl and/or C_1-C_4alkoxy, or R_1 is a $-CH_2CH=CHCH_2-$,  ,

 ,  or 

group;

R_2 is C_1-C_{18}alkyl, C_3-C_{12}cycloalkyl, C_2-C_{18}alkenyl, phenyl-C_1-C_4alkyl, phenyl, naphthyl, biphenyl or a 5- or 6-membered O-, S- or N-containing heterocyclic ring, the radicals phenyl, naphthyl, biphenyl or the 5- or 6-membered O-, S- or N-containing heterocyclic ring being unsubstituted or substituted by one to five halogen, C_1-C_8alkyl, C_1-C_8alkoxy and/or C_1-C_8alkylthio;

R_3 is C_1-C_{18}alkyl, C_2-C_{18}alkyl which is interrupted by one or several non-successive O atoms or which is interrupted by –CO-, –COO-, -OCO-, -OCOO-, -CO-N(R_9)-, -N(R_9)-CO-, -N(R_9)-CO-N(R_9)-, -N(R_9)-COO-; C_1-C_{18} alkyl substituted by $-OR_{10}$, -OCO-R_{10}, -COO-R_{10}, -N(R_9)-CO-R_{10}, -CO-N(R_9)-R_{10}, -C(R_{11})=C(R_{12})-CO-OR_{10} or -C(R_{11})=C(R_{12})-phenyl;

C_2-C_{12}alkenyl or C_2-C_{12}alkenyl which is interrupted by one or several non-successive O atoms; phenyl-C_1-C_4alkyl, phenyl, naphthyl, biphenyl, C_5-C_{12}cycloalkyl or a 5- or 6-membered O-, S- or N-containing heterocyclic ring, the radicals phenyl, naphthyl, biphenyl, C_5-C_{12}cycloalkyl or the 5- or 6-membered O-, S- or N-containing heterocyclic ring being unsubstituted or substituted by one to five halogen, C_1-C_8alkyl, C_1-C_8alkylthio C_1-C_8alkoxy and/or $-N(R_8)_2$; or $\mathbf{R_3}$ is $-CO-OR_9$ or $-CO-N(R_9)_2$;

Q is a single bond, CR_6R_7, -O- or -S- ;

$\mathbf{R_4}$ **and** $\mathbf{R_5}$ are each independently of the other hydrogen, C_1-C_4alkyl or C_1-C_4alkoxy;

$\mathbf{R_6}$ **and** $\mathbf{R_7}$ are each independently of the other hydrogen or C_1-C_4alkyl;

$\mathbf{R_8}$ is C_1-C_{18} alkyl, C_2-C_{18} alkyl which is interrupted by one or several non-successive O-atoms; or -$N(R_8)_2$ forms a 5- or 6-membered O-, S- or N-containing heterocyclic ring;

$\mathbf{R_9}$ is hydrogen, C_1-C_{18}alkyl, C_2-C_{18}alkyl which is interrupted by one or several non-successive O atoms, C_3-C_{12}-cycloalkyl, C_2-C_{18}-alkenyl, phenyl-C_1-C_4-alkyl, phenyl, naphthyl, pyridyl, the radicals phenyl, naphthyl or pyridyl being unsubstituted or substituted by one to five C_1-C_8-alkyl, C_1-C_8-alkoxy, C_1-C_8-alkylthio and/or halogen; or -$N(R_9)_2$ forms a 5- or 6-membered O-, S- or N-containing heterocyclic ring;

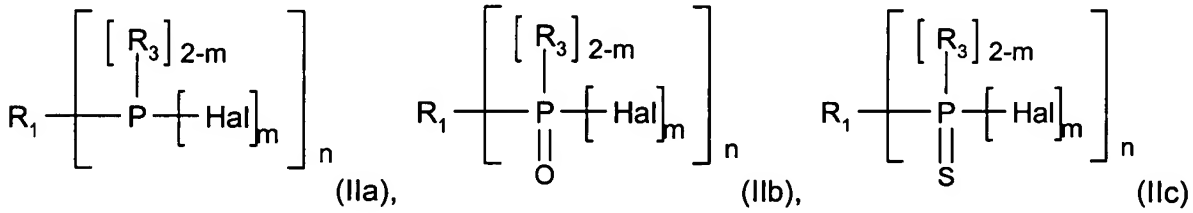
$\mathbf{R_{10}}$ is C_1-C_{18}alkyl, C_2-C_{18}alkyl which is interrupted by one or several non-successive O-atoms, C_3-C_{12}-cycloalkyl, phenyl-C_1-C_4-alkyl, C_2-C_{18}-alkenyl, phenyl, naphthyl or biphenyl, the radicals phenyl-C_1-C_4-alkyl, phenyl, naphthyl or biphenyl being unsubstituted or substituted by one to five C_1-C_8-alkyl, C_1-C_8-alkoxy, C_1-C_8-alkylthio and/or halogen;

$\mathbf{R_{11}}$ is hydrogen or C_1-C_4-alkyl;

$\mathbf{R_{12}}$ is hydrogen or C_1-C_4-alkyl;

by

(1) reacting a phosphorous halide of formula IIa or a phosphorous halide oxide of formula IIb or a phosphorous halide sulfide of formula IIc

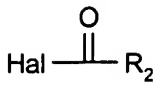


(IIa), (IIb), (IIc)

wherein R_1, R_3, n and m have the meaning cited above and Hal is F, Cl, Br or I;

with an alkali metal in a solvent (**metallation**) in the presence of a proton source (**reduction**);

(2) subsequent reaction with m acid halides of formula III



(III),

wherein R_2, Hal and m have the meaning cited above.

2.**(currently amended)** A process according to claim 1, wherein in step (1) the metallation is carried out by reacting a compound of the formula IIa, IIb, or IIc with ~~an alkali metal in a solvent, whereby a metallized phosphanide of the formula V~~

~~R_4-P(Me)-P(Me)-R_4 (V)~~

~~is formed together with cyclic phosphanes $(R_4P)_n$, n≥ 3 as intermediates, wherein~~

~~Me is~~ lithium, sodium or potassium or magnesium in combination with lithium in a solvent.~~, and~~

~~R_4 is as defined in claim 1; and~~

~~wherein the reduction is carried out by reacting the intermediate V and/or $(R_4P)_n$, n≥ 3 with a proton source.~~

3. **(previously presented)** A process according to claim 2, wherein
the alkali metal is sodium;
the proton source is selected from the group consisting of sterically hindered alcohols, trialkylamine hydrohalogenes, bisarylamines, malono nitrile, malonic acid esters, amidine hydrohalogene and carboxylic acids;
the solvent is one or more compounds selected from the group consisting of benzene, toluene, o-, m- or p-xylene, mesitylene, ethylbenzene, diphenylethane, 1,2,3,4-tetrahydronaphthaline (tetraline) and isopropylbenzene (cumol); and
the reaction temperature of step (1) is in the range from -20°C to +160°C.

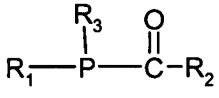
4. **(previously presented)** A process according to claim 3, wherein the sterically hindered alcohol is selected from the group consisting of secondary and tertiary C_3-C_{18}alcohols.

5. **(previously presented)** A process according to claim 1, wherein metallation is carried out in the presence of catalytic amounts of alkali or earth alkali hydroxides or of Na, K or Li alcoholates or of alcohols.

6. **(previously presented)** A process according to claim 1, wherein the metallation and reduction step is carried out in the presence of an activator.

7. **(previously presented)** A process according to claim 6, wherein the activator is an amine selected from the group consisting of triethylamine, tributylamine, piperidine, morpholine, N-methylpiperidine, N-methyl morpholine and polyamines.

8. **(previously presented)** A process according to claim 1 for the preparation of **monoacylphosphanes** of the formula I'

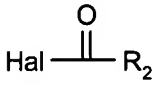

(I') by

(1) reacting organic phosphorus halides of formula II'

R_1-P(Hal)$_2$ (II')

with an alkali metal in a solvent in the presence of a proton source; and either

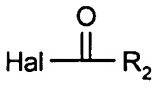
(2a) subsequent reaction with an acid halide of formula III'


(III')

followed by the reaction with an electrophilic compound R_3-Hal, or

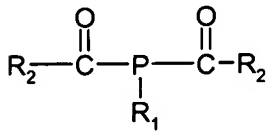
(2b) subsequent reaction with with an electrophilic compound R_3-Hal

followed by the reaction with an acid halide of formula III'


(III'),

wherein R_1, R_2 and R_3 and Hal are as defined in claim 1.

9. **(previously presented)** A process according to claim 1 for the preparation of **symmetric bisacylphosphanes** of the formula I"



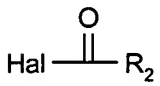
(I"), by

(1) reacting organic phosphorus halides of formula II"

R_1-P(Hal)$_2$ (II")

with an alkali metal in a solvent in the presence of a proton source;

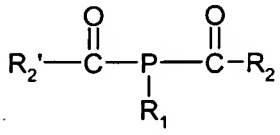
(2) subsequent reaction with an acid halide of formula III"



(III")

wherein R_1 and R_2 and Hal are as defined in claim 1.

10. **(original)** A process according to claim 1 for the preparation of **unsymmetric bisacylphosphanes** of the formula I'''



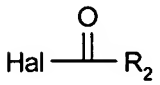
(I''') by

(1) reacting organic phosphorus halides of formula II"

R_1-P(Hal)$_2$ (II")

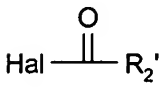
with an alkali metal in a solvent in the presence of a proton source;

(2) subsequent reaction with an acid halide of formula III"



(III")

(3) subsequent reaction with a second acid halide III'''



(III''')

wherein

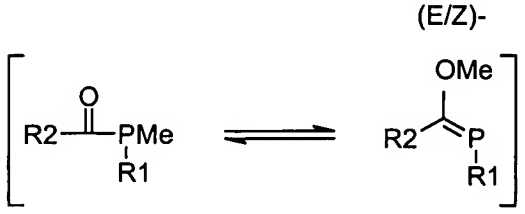
R_1 is as defined in claim 1 and

R_2 and R_2' independently of one another are as defined in claim 1 under R_2 with the proviso that R_2 is not equal R_2',

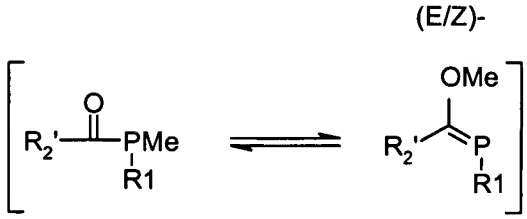
Hal is as defined in claim 1.

11. **(cancelled)**

12. **(previously presented)** A process according to claim 1 for the preparation of mono acylated phosphanes of the formula VI and VI'



VI



VI'

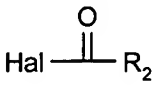
by

(1) reacting organic phosphorus halides of formula II"

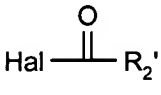
R_1-P(Hal)$_2$ (II")

with an alkali metal in a solvent in the presence of a proton source;

(2) subsequent reaction with an acid halide of formula III" or III'"



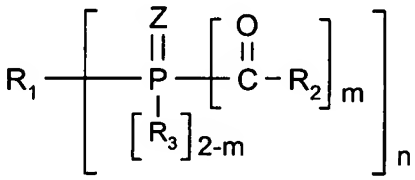
(III")



(III'")

wherein R_1, R_2 are as defined in claim 1, R_2' is as defined in claim 1 under R_2 with the proviso that R_2 is not equal R_2' and Me is Li, Na, K or Mg in combination with Li.

13. **(currently amended)** A process according to claim 1, further comprising an additional step of oxiding the acylphosphane of formula (I) to prepare acylphosphane oxides or reacting the acylphosphane of formula (I) with sulfur to prepare ~~acylphosphane oxides and~~ acylphosphane sulfides of formula IV



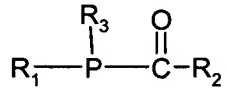
(IV), wherein

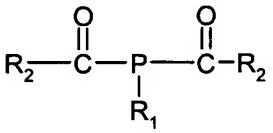
R_1, R_2, R_3, n and m are as defined in claim1, and Z is O or S.

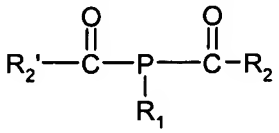
14. **(previously presented)** A process according to claim 4, wherein the secondary and tertiary C_3-C_{18}alcohols are selected from the group consisting of t-butanol, t-amyl-alcohol, 3-methyl-3-pentanol, 3-ethyl-3-pentanol, triphenylmethanol, 3,7-dimethyl-3-octanol, 2-methyl-1-phenyl-2-propanol, 2-methyl-4-phenyl-2-butanol, fenchyl alcohol, 2,4-dimethyl-3-pentanol, 1-dimethylamino-2-propanol or hexylene glycol.

15. **(previously presented)** A process according to claim 5, wherein metallation is carried out in the presence of catalytic amounts of Na, K or Li sterically hindered alcoholates or sterically hindered alcohols.

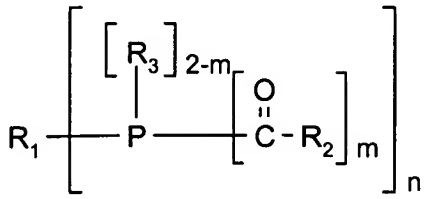
16. **(previously presented)** A process according to claim 7, wherein the polyamine is N,N,N',N'-tetramethylethylenediamine.

17. **(previously presented)** A process according to claim 13, wherein a monoacylphosphane of formula I'  (I'), is oxidized or reacted sulfur.

18. **(previously presented)** A process according to claim 13, wherein a symmetric bisacylphosphane of formula I"  (I"), is oxidized or reacted sulfur.

19. **(previously presented)** A process according to claim 13, wherein an unsymmetric bisacylphosphane of formula I'"  (I'")), is oxidized or reacted sulfur.

20. **(new)** A process for the preparation of acylphosphanes of formula I



(I), wherein

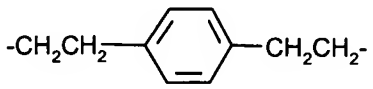
n and m are each independently of the other 1 or 2;

R_1, if n = 1, is

C_1-C_{18}alkyl, C_2-C_{18}alkyl which is interrupted by one or several non-successive O atoms, phenyl-C_1-C_4alkyl, C_2-C_8alkenyl, phenyl, naphthyl, biphenyl, C_5-C_{12}cycloalkyl or a 5- or 6-membered O-, S- or N-containing heterocyclic ring, the radicals phenyl, naphthyl, biphenyl, C_5-C_{12}cycloalkyl or the 5- or 6-membered O-, S- or N-containing heterocyclic ring being unsubstituted or substituted by one to five halogen, C_1-C_8alkyl, C_1-C_8alkylthio, C_1-C_8alkoxy and/or $-N(R_8)_2$;

R_1, if n = 2, is

C_1-C_{18}alkylene, C_2-C_{18}alkylene which is interrupted by one or several non-successive O atoms; or R_1 is C_1-C_6alkylene which is substituted by C_1-C_4alkoxy, phenyl, C_1-C_4alkylphenyl, phenyl-C_1-C_4alkyl or C_1-C_6alkoxyphenyl; or R_1 is phenylene or xylylene, which radicals are unsubstituted or substituted by one to three C_1-C_4alkyl and/or C_1-C_4alkoxy, or R_1 is a $-CH_2CH=CHCH_2-$, $-CH_2-C\equiv C-CH_2-$,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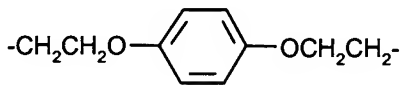
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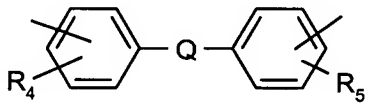


group;

R_2 is C_1-C_{18}alkyl, C_3-C_{12}cycloalkyl, C_2-C_{18}alkenyl, phenyl-C_1-C_4alkyl, phenyl, naphthyl, biphenyl or a 5- or 6-membered O-, S- or N-containing heterocyclic ring, the radicals phenyl, naphthyl, biphenyl or the 5- or 6-membered O-, S- or N-containing heterocyclic ring being unsubstituted or substituted by one to five halogen, C_1-C_8alkyl, C_1-C_8alkoxy and/or C_1-C_8alkylthio;

R_3 is C_1-C_{18}alkyl, C_2-C_{18}alkyl which is interrupted by one or several non-successive O atoms or which is interrupted by –CO-, –COO-, -OCO-, -OCOO-, -CO-N(R_9)-, -N(R_9)-CO-, -N(R_9)-CO-N(R_9)-, -N(R_9)-COO-; C_1-C_{18} alkyl substituted by $-OR_{10}$, -OCO-R_{10}, -COO-R_{10}, -N(R_9)-CO-R_{10}, -CO-N(R_9)-R_{10}, -C(R_{11})=C(R_{12})-CO-OR_{10} or -C(R_{11})=C(R_{12})-phenyl;

C_2-C_{12}alkenyl or C_2-C_{12}alkenyl which is interrupted by one or several non-successive O atoms; phenyl-C_1-C_4alkyl, phenyl, naphthyl, biphenyl, C_5-C_{12}cycloalkyl or a 5- or 6-membered O-, S- or N-

containing heterocyclic ring, the radicals phenyl, naphthyl, biphenyl, C_5-C_{12}cycloalkyl or the 5- or 6-membered O-, S- or N-containing heterocyclic ring being unsubstituted or substituted by one to five halogen, C_1-C_8alkyl, C_1-C_8alkylthio C_1-C_8alkoxy and/or $-N(R_8)_2$; or $\mathbf{R_3}$ is $-CO-OR_9$ or $-CO-N(R_9)_2$;

Q is a single bond, CR_6R_7, -O- or -S- ;

$\mathbf{R_4}$ **and** $\mathbf{R_5}$ are each independently of the other hydrogen, C_1-C_4alkyl or C_1-C_4alkoxy;

$\mathbf{R_6}$ **and** $\mathbf{R_7}$ are each independently of the other hydrogen or C_1-C_4alkyl;

$\mathbf{R_8}$ is C_1-C_{18} alkyl, C_2-C_{18} alkyl which is interrupted by one or several non-successive O-atoms; or $-N(R_8)_2$ forms a 5- or 6-membered O-, S- or N-containing heterocyclic ring;

$\mathbf{R_9}$ is hydrogen, C_1-C_{18}alkyl, C_2-C_{18}alkyl which is interrupted by one or several non-successive O atoms, C_3-C_{12}-cycloalkyl, C_2-C_{18}-alkenyl, phenyl-C_1-C_4-alkyl, phenyl, naphthyl, pyridyl, the radicals phenyl, naphthyl or pyridyl being unsubstituted or substituted by one to five C_1-C_8-alkyl, C_1-C_8-alkoxy, C_1-C_8-alkylthio and/or halogen; or $-N(R_9)_2$ forms a 5- or 6-membered O-, S- or N-containing heterocyclic ring;

$\mathbf{R_{10}}$ is C_1-C_{18}alkyl, C_2-C_{18}alkyl which is interrupted by one or several non-successive O-atoms, C_3-C_{12}-cycloalkyl, phenyl-C_1-C_4-alkyl, C_2-C_{18}-alkenyl, phenyl, naphthyl or biphenyl, the radicals phenyl-C_1-C_4-alkyl, phenyl, naphthyl or biphenyl being unsubstituted or substituted by one to five C_1-C_8-alkyl, C_1-C_8-alkoxy, C_1-C_8-alkylthio and/or halogen;

$\mathbf{R_{11}}$ is hydrogen or C_1-C_4-alkyl;

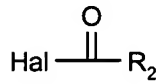
$\mathbf{R_{12}}$ is hydrogen or C_1-C_4-alkyl;

by

(1) reacting diphospanes of the formula $(R_1)_2$-P-P$(R_1)_2$ or polyphosphanes of the formula $[R_1P]n$, wherein **n is ≥ 3** and R_1 is any group as defined for R_1 above

with an alkali metal in a solvent in the presence of a proton source,

(2) followed by the reaction with acid halides of formula III



(III), and/or by reaction with electrophilic compounds R_3-Hal, wherein R_2, R_3 and Hal have the meaning cited above.